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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,354	06/29/2001	Karl-Heinz Wienand	927-077US (P09686 US)	2262

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PHILADELPHIA, PA 19103-7013

EXAMINER

DEJESUS, LYDIA M

ART UNIT PAPER NUMBER

2859

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/896,354

Applicant(s)

WIENAND ET AL.

Examiner

Lydia M. De Jesus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1- 3, 6-10 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noma et al. [U.S. Patent 5,660,473, hereinafter Noma] in view of Nolting et al. [U.S. Patent 4,516,106, hereinafter Nolting].

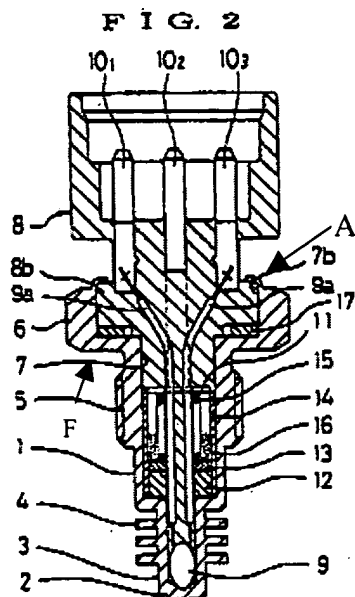
Noma discloses a sensor for detecting a temperature of a fluid in the hollow space of a housing, comprising: a temperature-measuring element [thermistor 9] connectable to an evaluation device via a plug arrangement [8b] and arranged in a protective tube [1] of a sensor housing, which is closed at one end [2], and a connection piece [8] firmly attached to the sensor housing, the protective tube [1] being adapted to project at least with its tip into an opening of the hollow space housing, as shown in Figure 1, where it can be sealed off from outside

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atmosphere using an elastic O-ring/gasket [18], as shown in Figure 4, wherein the measuring element [9] is arranged in a tip section [2] of said protective tube [1] and is connected via lead wires [9a] to the plug arrangement [8b] positioned on the opposite end of the protective tube, wherein the plug arrangement [8b] is surrounded by a screw sheath/nut [3] of the sensor housing, which is firmly connected to the protective tube and which is provided with a threading, as shown in Figure 1, adapted to project into the hollow space housing for purposes of mounting, the screw sheath having a flange [labeled F in a copy of Figure 2 of Noma shown below] extending in a radial direction, which provides a press on surface for an O-ring/gasket [18], as shown in Figure 4, for sealing off an opening of the hollow space housing. Said sensor is adapted for measuring a temperature in a flowing medium (see Fig. 1).

As shown in Figure 2 of Noma provided below, said screw sheath/unit [3] is provided with an annular edge [labeled A] arranged coaxially with the threading, on a side of the screw sheath/nut [3] facing away from the protective tube, for attaching the connection piece [8], and it is considered that said annular edge is capable of performing the function of stopping the connection piece [8] in its plug-in position against axial shifting.

With respect to the limitations in claim 1 related to a circuit board and the limitations of claim 5: Noma fails to disclose said temperature measuring element being arranged on a circuit board such the measuring element is arranged in a tip region of the protective tube on one end of a longitudinally extending circuit board and connected via strip conductors to the plug arrangement positioned on the opposite end of the circuit board. Noma also fails to disclose said measurement element mounted on a circuit board and embedded in a heat conducting paste.



However, Nolting shows in Figures 2 and 3 a temperature sensing element [NTC resistor 23] connected via conductive wires [24, 25] to enlarged conductive surfaces/contact pads [28] on one end of a longitudinally extending circuit board [27], wherein the enlarged conductive surfaces/contact pads [28,30] are connected via strip conductors [29] to a plug arrangement [33] positioned on an opposite end of the circuit board. Said temperature sensing element, in a broad sense, is considered to be a surface mountable component, since it is capable of being mounted on a surface.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the temperature sensor configuration coupling the temperature sensing element and the plug arrangement disclosed by Noma, for a temperature sensing element i.e., NTC resistor, connected via the elements conductive wires to contact pads on one end of a circuit board, wherein the contact pads are connected via strip conductors to the plug

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arrangement, as taught by Nolting, in order to provide electrical insulation to the conductor strips as well as good supporting capability under a high temperature environment.

4. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noma in view of Nolting as applied to claims 1- 3, 6-10 and 13-14 above, and further in view of Ciavarino et al. [hereinafter Ciavarino].

Noma and Nolting together disclose a sensor as claimed, as stated above in paragraph 3, but fail to disclose said connection piece being secured against turning relative to the screw sheath/nut [3] of the sensor housing by locking beads and/or recesses.

Ciaravino teaches the use of recesses [18] in combination with bead/tabs [130] to prevent rotation of a measuring element [rings 92] with respect to the probe housing.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add locking beads and corresponding recesses to the interface between the connection piece and the screw sheath of the sensor of the combination of Noma and Nolting, as suggested by Ciaravino, in order to simplify installation.

5. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noma in view of Nolting as applied to claims 1-3, 6-10 and 13-14 above, and further in view of Shijo.

Noma and Nolting together disclose a sensor as claimed, as stated above in paragraph 3, and Noma further shows the temperature measuring element immersed in heat conducting oil [16]. However, Noma and Nolting fail to show the temperature measuring element being immersed in a heat conducting paste.

Shijo teaches that it is very well known in the art to secure a temperature sensing element mounted within a sheath embedded in a heat conducting paste see lines 21-25 of column 3.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the heat conducting oil disclosed by Noma in the combination of Noma and Nolting, for a heat conducting paste, as suggested by Shijo, since both will perform the same function, if one is replaced by the other, of improving the transfer of heat from the environment to the temperature sensing element and further to prevent deterioration of the conductive elements in the sensing element mounting configuration.

Response to Arguments

6. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lydia M. De Jesús whose telephone number is (703) 306-5982.

The examiner can normally be reached on 7:30 to 4:00 p.m., Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

LDJ
August 20, 2003


ANDREW H. HIRSHFELD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800